OIPE JC143
MAR 10 2005
PATENT & TRADEMARK OFFICE

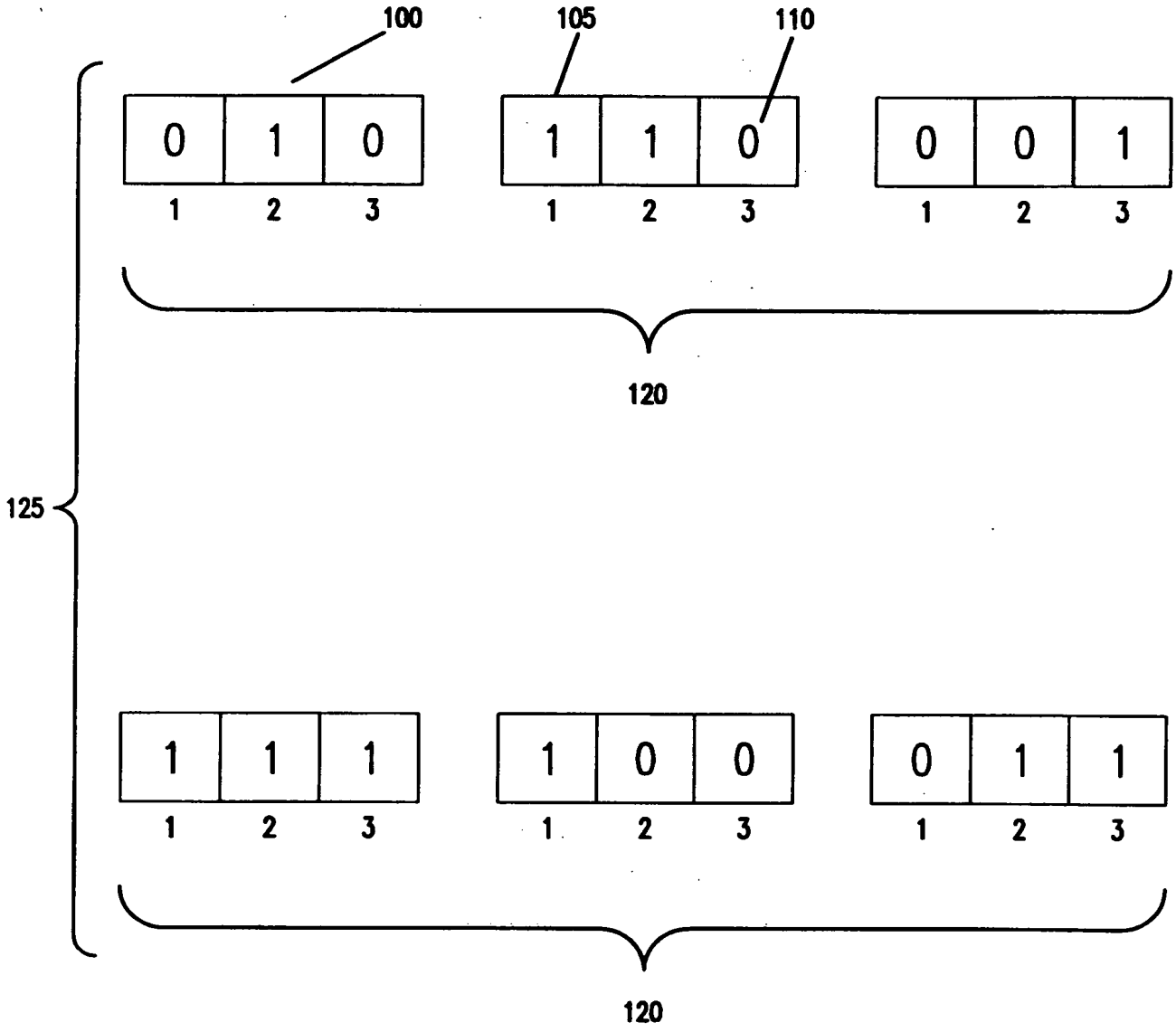

FIG. 1

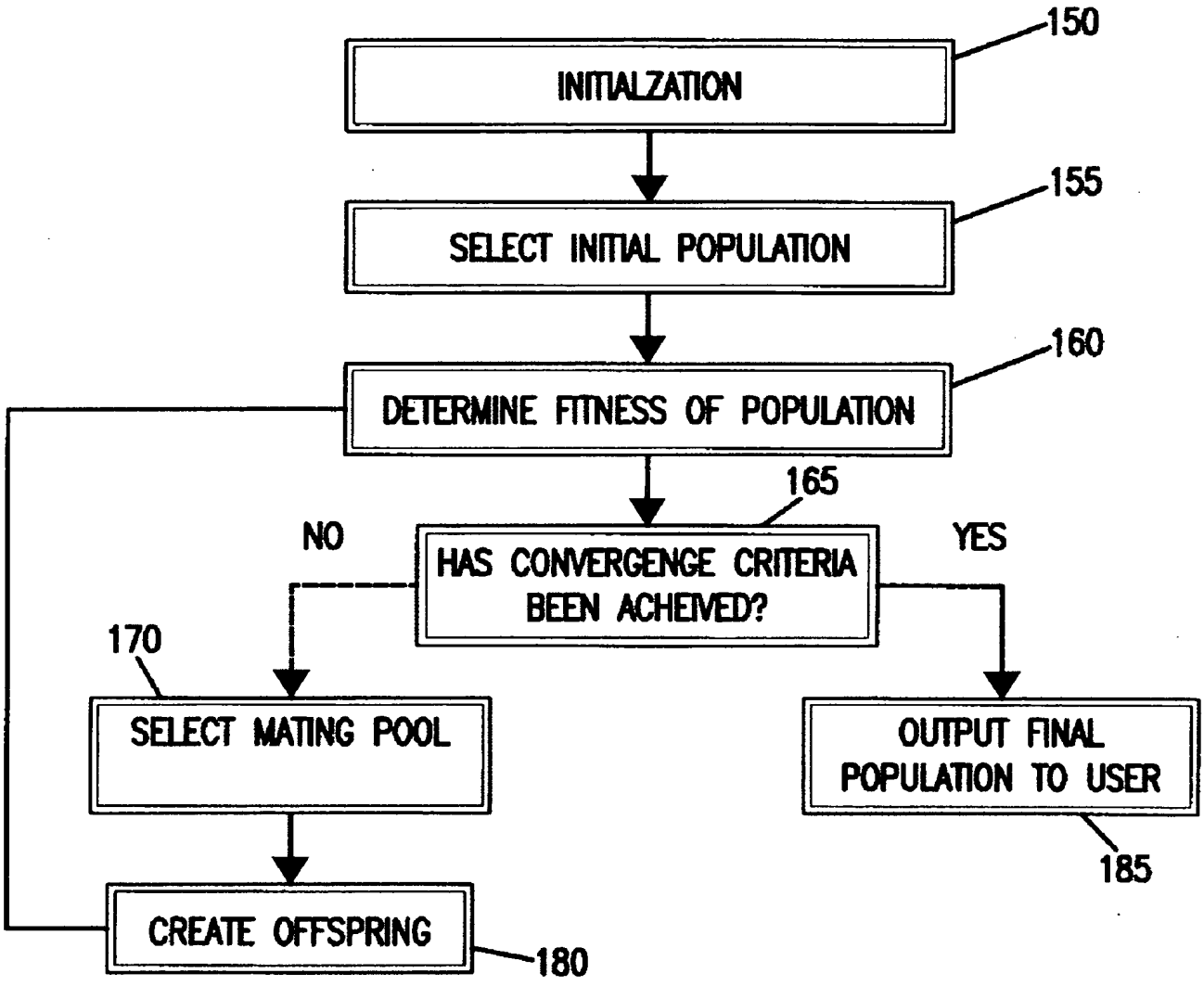
150
INITIALZATION
155
SELECT INITIAL POPULATION
160
DETERMINE FITNESS OF POPULATION
165
NO
HAS CONVERGENCE CRITERIA BEEN ACHEIVED?
YES
170
SELECT MATING POOL
OUTPUT FINAL POPULATION TO USER
185
CREATE OFFSPRING
180

FIG. 2

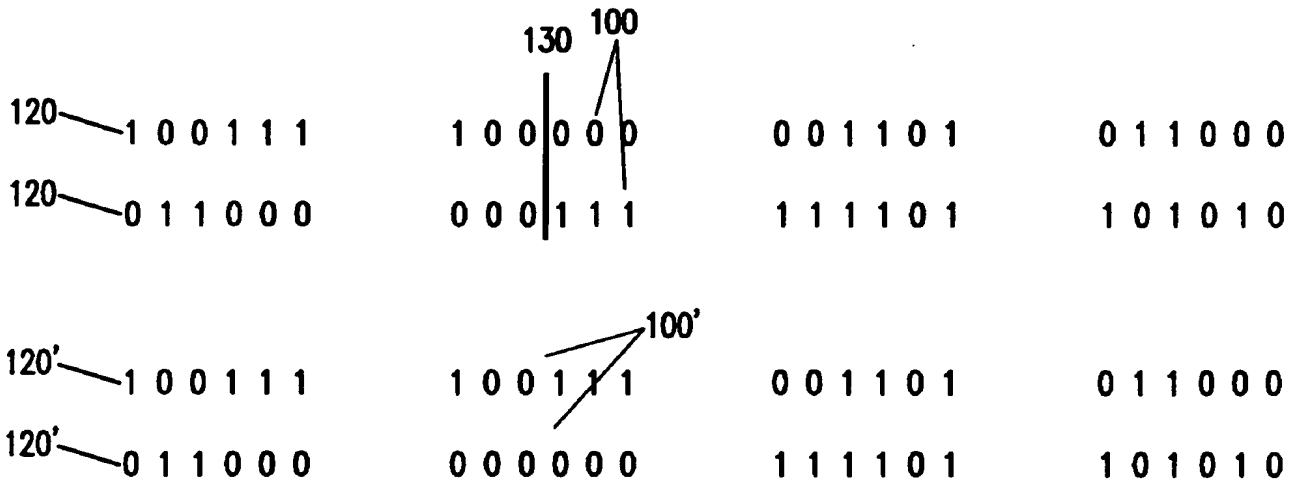
130
100
120
1 0 0 1 1 1
1 0 0 0 0 0
0 0 1 1 0 1
0 1 1 0 0 0
120
0 1 1 0 0 0
0 0 0 1 1 1
1 1 1 1 0 1
1 0 1 0 1 0
100'
120'
1 0 0 1 1 1
1 0 0 1 1 1
0 0 1 1 0 1
0 1 1 0 0 0
120'
0 1 1 0 0 0
0 0 0 0 0 0
1 1 1 1 0 1
1 0 1 0 1 0

FIG. 3A

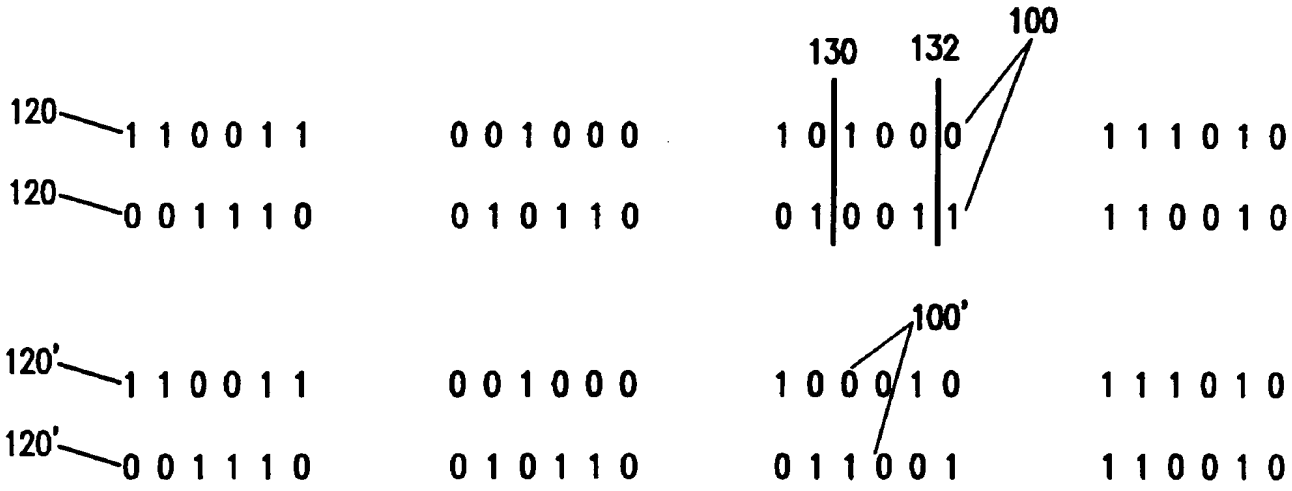
130
132
100
120
1 1 0 0 1 1
0 0 1 0 0 0
1 0 1 0 0 0
1 1 1 0 1 0
120
0 0 1 1 1 0
0 1 0 1 1 0
0 1 0 0 1 1
1 1 0 0 1 0
100'
120'
1 1 0 0 1 1
0 0 1 0 0 0
1 0 0 0 1 0
1 1 1 0 1 0
120'
0 0 1 1 1 0
0 1 0 1 1 0
0 1 1 0 0 1
1 1 0 0 1 0

FIG. 3B

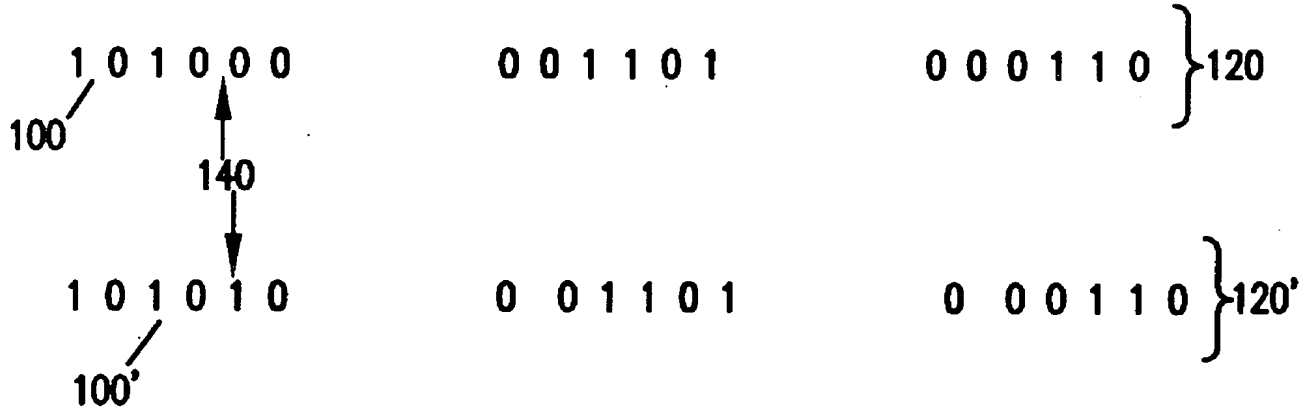
1 0 1 0 0 0
0 0 1 1 0 1
0 0 0 1 1 0
120
100
140
1 0 1 0 1 0
0 0 1 1 0 1
0 0 0 1 1 0
120'
100'

FIG. 4A

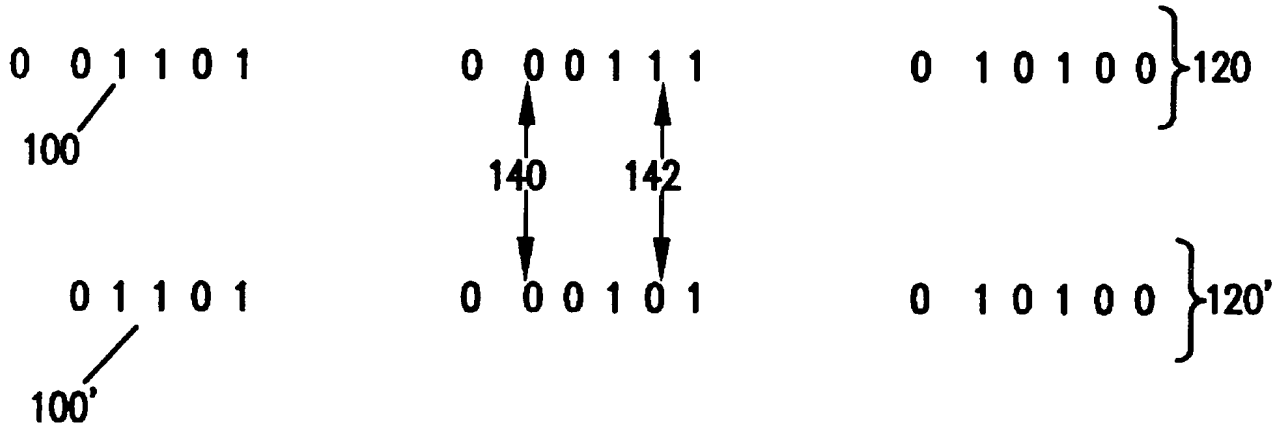
0 0 1 1 0 1
0 0 0 1 1 1
0 1 0 1 0 0
120
100
140
142
0 1 1 0 1
0 0 0 1 0 1
0 1 0 1 0 0
120'
100'

FIG. 4B

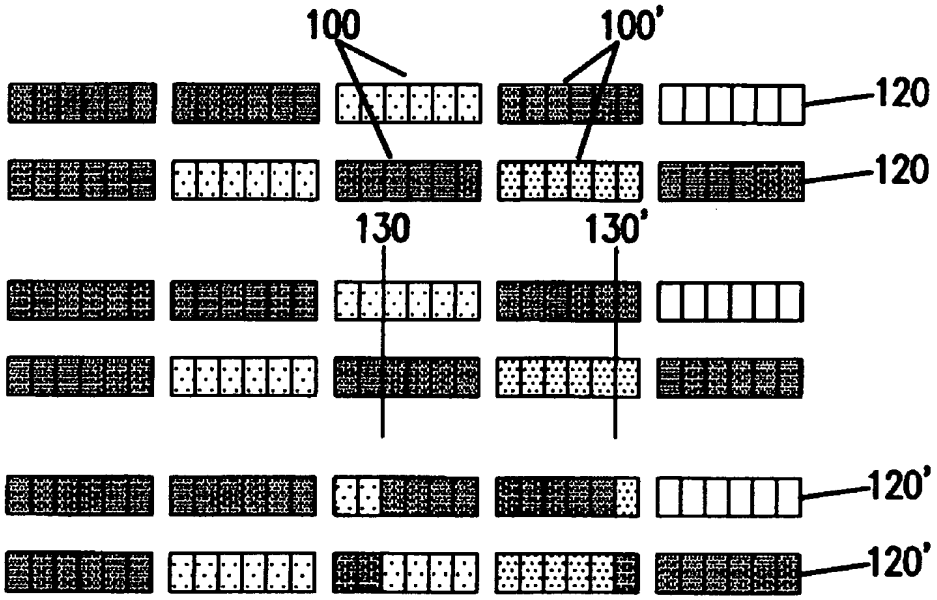
100
100'
120
120
130
130'
120'
120'

FIG. 5

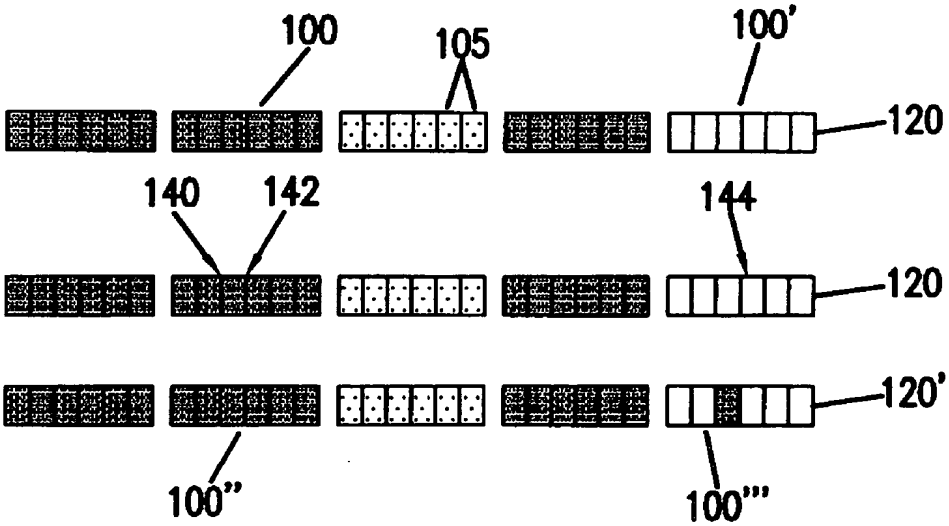
100
105
100'
120
140
142
144
120
120'
100"
100'''

FIG. 6

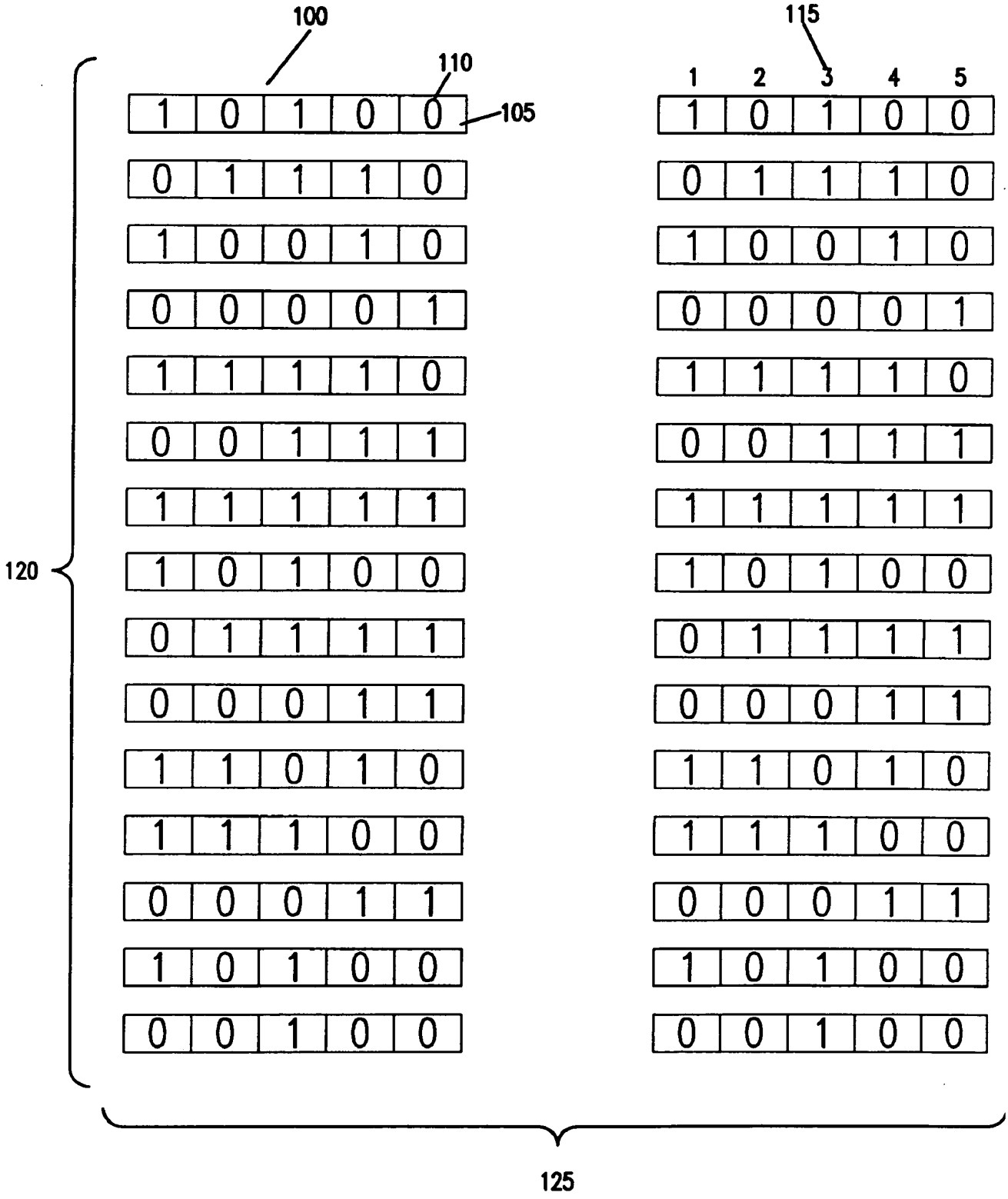

FIG. 7

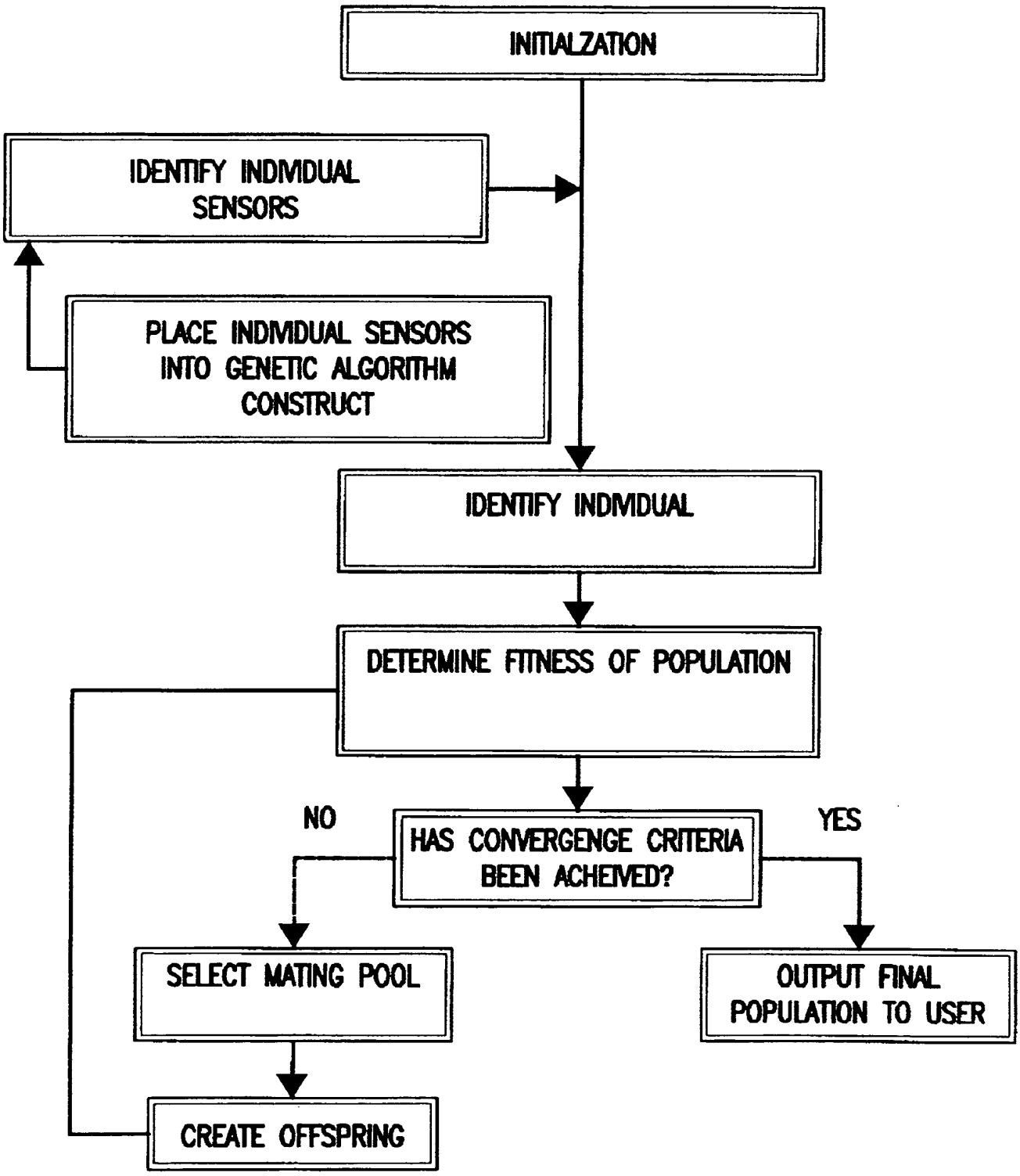
INITIALZATION
IDENTIFY INDIVIDUAL SENSORS
PLACE INDIVIDUAL SENSORS INTO GENETIC ALGORITHM CONSTRUCT
IDENTIFY INDIVIDUAL
DETERMINE FITNESS OF POPULATION
NO
HAS CONVERGENGE CRITERIA BEEN ACHEIVED?
YES
SELECT MATING POOL
OUTPUT FINAL POPULATION TO USER
CREATE OFFSPRING

FIG. 8

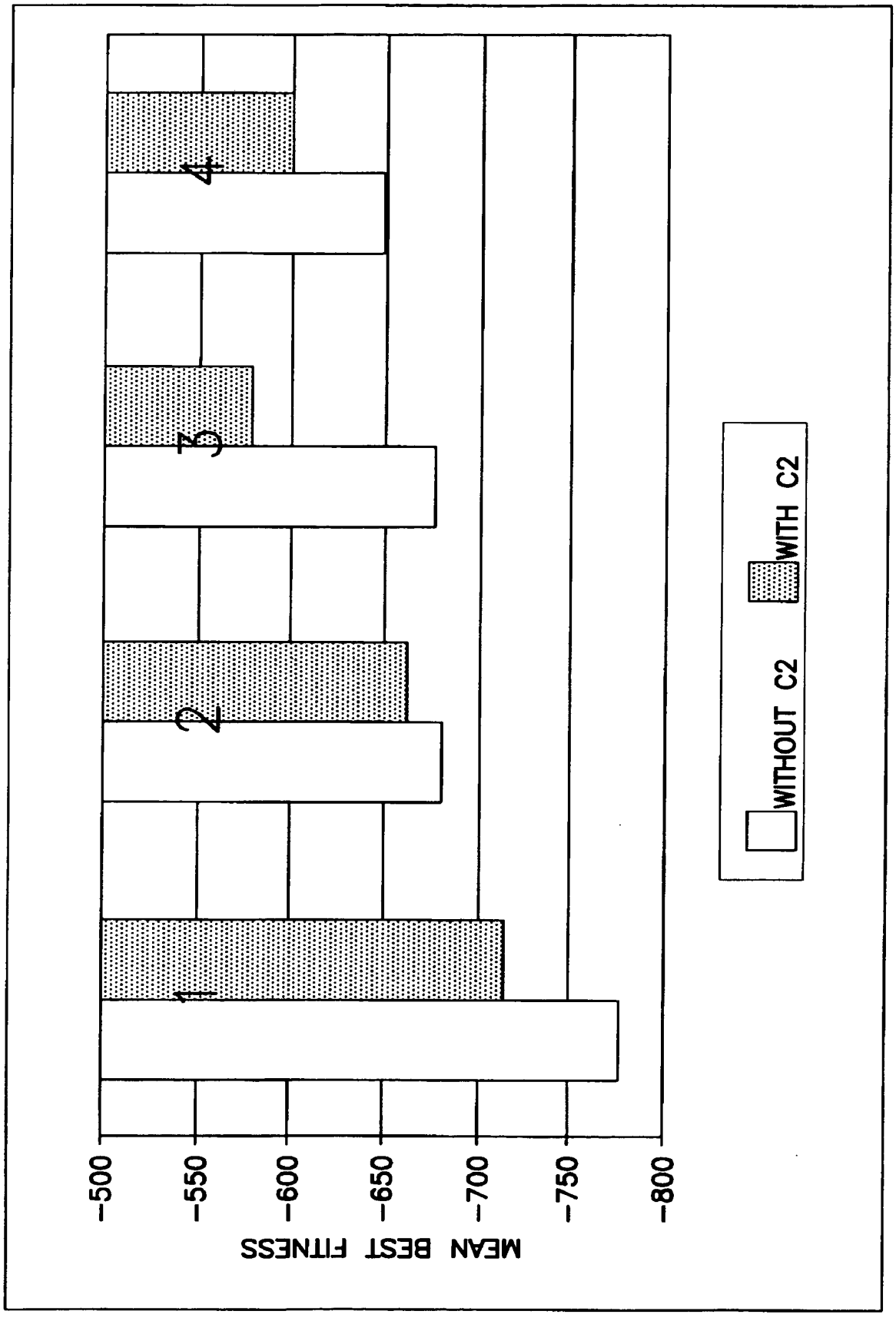
4
3
2
1
-500
-550
-600
-650
-700
-750
-800
MEAN BEST FITNESS
WITHOUT C2
WITH C2

FIG. 9

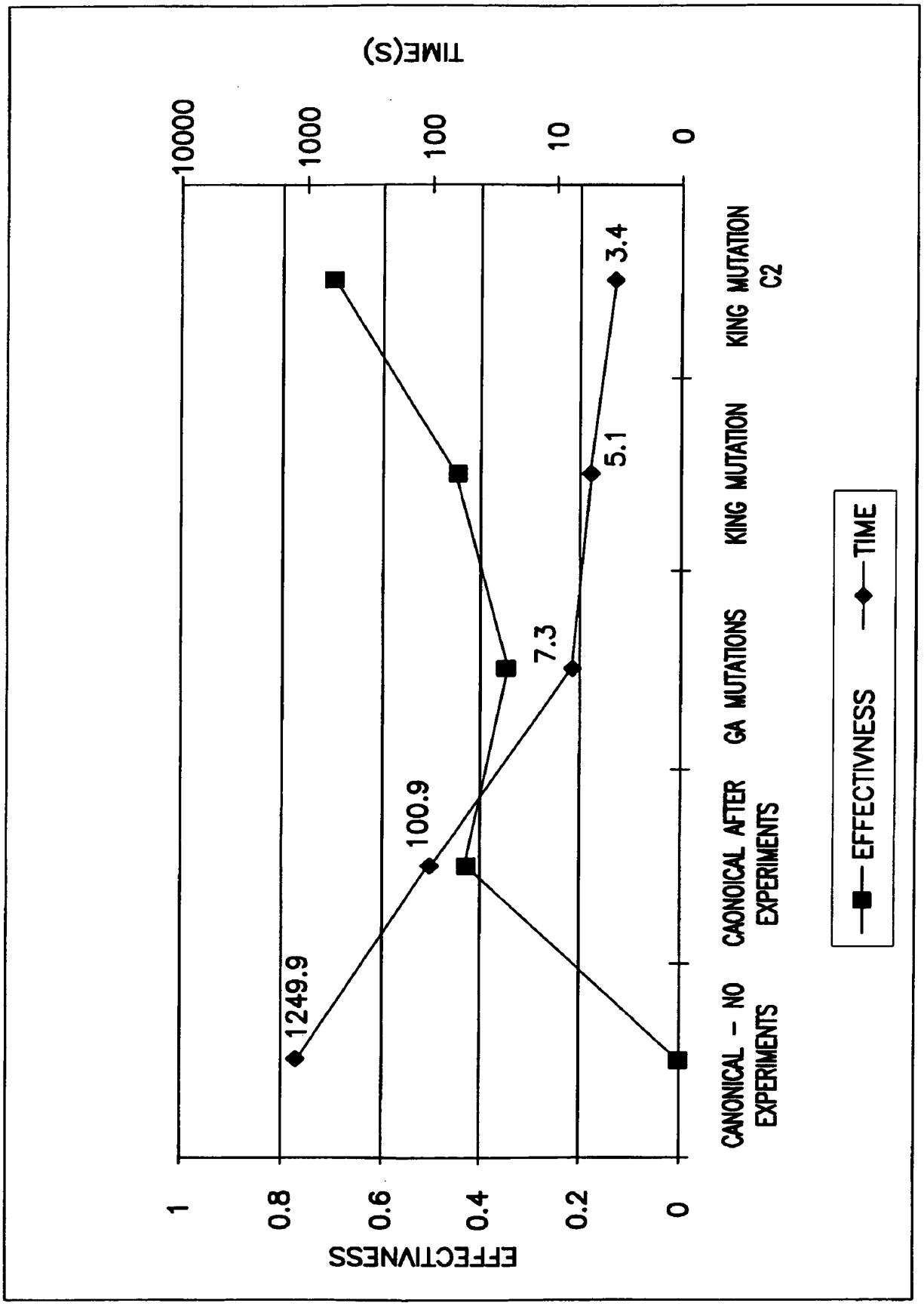
TIME(S)
10000
1000
100
10
0
EFFECTIVNESS
1
0.8
0.6
0.4
0.2
0
1249.9
100.9
7.3
5.1
3.4
CANONICAL – NO EXPERIMENTS
CAONOICAL AFTER EXPERIMENTS
GA MUTATIONS
KING MUTATION
KING MUTATION C2
EFFECTIVNESS
TIME

FIG. 10

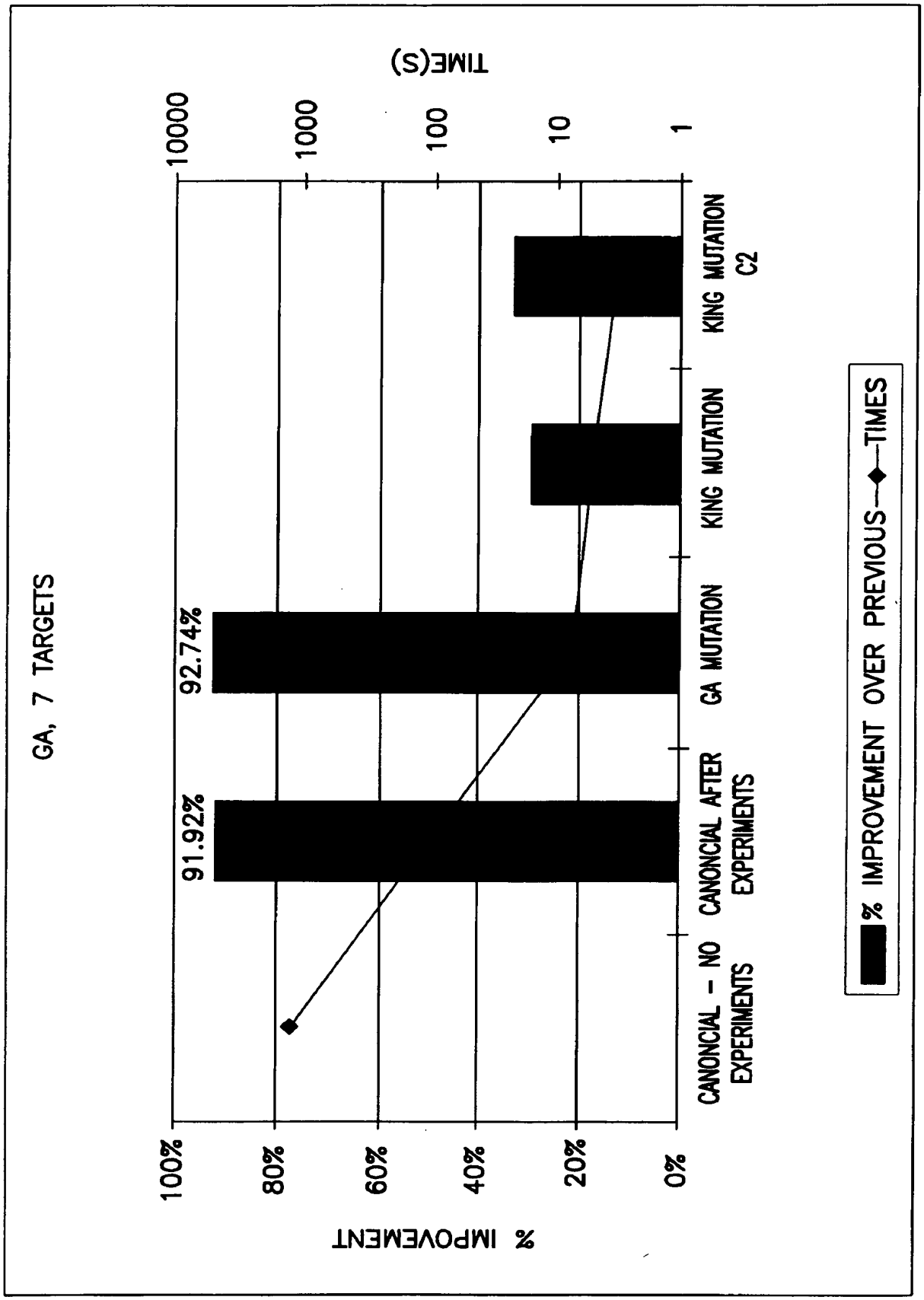
GA, 7 TARGETS
TIME(S)
10000
1000
100
10
1
% IMPOVEMENT
100%
80%
60%
40%
20%
0%
92.74%
91.92%
CANONCIAL – NO EXPERIMENTS
CANONCIAL AFTER EXPERIMENTS
GA MUTATION
KING MUTATION
KING MUTATION C2
% IMPROVEMENT OVER PREVIOUS
TIMES

FIG. 11